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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/541,525

**Applicant(s)**

KUMAZAWA ET AL.

**Examiner**

Andrew C. Lee

**Art Unit**

2419

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. Claims 1 – 13 are pending.

***Claim Objections***

2. Claim 3 is objected to because of the following informalities:

Regarding claim 2, the clause "capable of" is not a positive recitation. Appropriate correction is required.

Regarding claim 3, the clause "the router function of the first router" should be corrected as the routing function of the first router so as to be consistent with claim 2. Appropriate correction is required.

Regarding claim 6, the clause "capable of" is not a positive recitation. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 3, the amended claimed subject matter "a further message", it is not clear which "further message" referring to. Does the applicant mean the second or the third or ..? Clarification and correction is required.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 8, the amended claimed subject matter "a further router", it is not clear which "a further router" referring to. Does the applicant mean the second or the third or ..? Clarification and correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Ichinohe et al. (6148411).

**Regarding claim 1**, Ichinohe et al. disclose a routing control method of a local area network (LAN) comprising one or more terminals having at least one LAN interface, one or more routers having a routing function performing a relay of data between the LAN and an external network, and a LAN medium connecting the terminals and routers mutually (*Fig. 1A, Fig. 1B, col. 6, lines 29 – 60*), the routing control method comprising: first multicasting, by a first router of the one or more routers, a routing stop message indicating the routing function of the first router is to stop or has stopped, the multicasting

of the routing stop message being responsive to the routing function of the router being disabled or being predicted to become disabled, during execution of the routing function (*"a stop function indication"; Fig. 1A, Fig. 1B, Fig. 3, Fig. 11, col. 9, lines 32 – 41, 50 – 65*); after the first multicasting of the routing stop message, second multicasting, by another of the routers, a routing capability message, wherein the another router is one of the routers that has received the routing stop message and the second multicasting is responsive to the another router being capable of executing the routing function, so that the routing function is switched to the another router (*"information of definition"; col. 10, lines 12 – 49*).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2, 3, 4, 5, 6, 7, 8, 10, 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichinohe et al. (6148411) in view of Yamaya et al. (US 20020184387 A1).

**Regarding claim 2**, Ichinohe et al. disclose a routing control method (*Abstract, Fig. 1A, Fig. 1B, col. 6, lines 29 – 60*) comprising: monitoring, by a first router, a status of a connection with an external network and when the connection is to be cancelled, transmitting, by the first router, a message (*col. 9, lines 5 – 17, lines 42 – 65*), *except*

notifying a routing stop time, as a time remaining until a stop of a routing function of the first router, to nodes in a local area network to which the first router is; receiving, by a second router, receives the routing stop message, and if the second router capable of the routing function, transmitting, by the second router transmits a routing capability message (*"information of definition"; col. 10, lines 12 – 49*), except notifying a transition time, a time required to enable the routing function of the first router, to the nodes in the local area network to which the second router is connected; and switching, by the nodes receiving the routing stop message and the routing capability message, a destination of transmissions from the first router to the second router (*col. 10, lines 25 – 49*).

Ichinohe et al. do not disclose explicitly a message notifying a routing stop time, as a time remaining until a stop of a routing function of the first router, to nodes in a local area network to which the first router is connected, and a message notifying a transition time, a time required to enable the routing function of the first router, to the nodes in the local area network to which the second router is connected.

Yamaya et al. in the same field of endeavor teach a message notifying a routing stop time, as a time remaining until a stop of a routing function of the first router, to nodes in a local area network to which the first router is connected (*Fig. 6, Fig. 7, Fig. 8, paras. [0055], [0061], [0140], [0141]*), and a message notifying a transition time, a time required to enable the routing function of the first router, to the nodes in the local area network to which the second router is connected (*Fig. 18, para. [0142] – [0143]*).

At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Ichinohe et al. to include the features of

a message notifying a routing stop time, as a time remaining until a stop of a routing function of the first router, to nodes in a local area network to which the first router is connected, and a message notifying a transition time, a time required to enable the routing function of the first router, to the nodes in the local area network to which the second router is connected as taught by Yamaya et al. One of ordinary skill in the art would be motivated to do so for providing a method for connecting between networks, a virtual router, and a system for connecting between networks by using this virtual router that make it possible to carry out a data forwarding even if a plurality of lines have been disconnected due to the occurrence of a trouble on a route among the lines connected to a virtual route (*as suggested by Yamaya et al., see para. [0009]*).

**Regarding claim 3,** Ichinohe et al. do not disclose if the first router receives a further message directed toward an external network after the stop of the router function of the first router, storing, by the first router, the further message; and after the first router receives the routing capability message from the second router, transfers transferring, by the first router, the stored message to the second router.

Yamaya et al. in the same field of endeavor teach if the first router receives a further message directed toward an external network after the stop of the router function of the first router, storing, by the first router, the further message; and after the first router receives the routing capability message from the second router, transfers transferring, by the first router, the stored message to the second router (Fig. 19, paras. [0150] – [0154]).

At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Ichinohe et al. to include the features of

if the first router receives a further message directed toward an external network after the stop of the router function of the first router, storing, by the first router, the further message; and after the first router receives the routing capability message from the second router, transfers transferring, by the first router, the stored message to the second router as taught by Yamaya et al. One of ordinary skill in the art would be motivated to do so for providing a method for connecting between networks, a virtual router, and a system for connecting between networks by using this virtual router that make it possible to carry out a data forwarding even if a plurality of lines have been disconnected due to the occurrence of a trouble on a route among the lines connected to a virtual route (*as suggested by Yamaya et al., see para. [0009]*).

**Regarding claim 4,** Ichinohe et al. do not disclose wherein after the first router receives the routing capability message, transferring, by the first router, the stored message to the second router after a routing capability time has lapsed.

Yamaya et al. in the same field of endeavor teach wherein after the first router receives the routing capability message, transferring, by the first router, the stored message to the second router after a routing capability time has lapsed (*Fig. 18, paras. [0140] – [0144]*).

At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Ichinohe et al. to include the features of wherein after the first router receives the routing capability message, transferring, by the first router, the stored message to the second router after a routing capability time has lapsed as taught by Yamaya et al. One of ordinary skill in the art would be motivated to do so for providing a method for connecting between networks, a virtual router, and a



system for connecting between networks by using this virtual router that make it possible to carry out a data forwarding even if a plurality of lines have been disconnected due to the occurrence of a trouble on a route among the lines connected to a virtual route (*as suggested by Yamaya et al., see para. [0009]*).

**Regarding claim 5**, Ichinohe et al. do not disclose deciding, by the second router, that the routing function of the first router has stopped if the routing stop time in the message received from the first router is equal to or smaller than a predetermined time. Yamaya et al. in the same field of endeavor teach deciding, by the second router, that the routing function of the first router has stopped if the routing stop time in the message received from the first router is equal to or smaller than a predetermined time (*paras. 0116] – [0017]*).

At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Ichinohe et al. to include the features of deciding, by the second router, that the routing function of the first router has stopped if the routing stop time in the message received from the first router is equal to or smaller than a predetermined time as taught by Yamaya et al. One of ordinary skill in the art would be motivated to do so for providing a method for connecting between networks, a virtual router, and a system for connecting between networks by using this virtual router that make it possible to carry out a data forwarding even if a plurality of lines have been disconnected due to the occurrence of a trouble on a route among the lines connected to a virtual route (*as suggested by Yamaya et al., see para. [0009]*).

**Regarding claim 6**, Ichinohe et al. disclose a router (*Fig. 1A, Fig. 1B*) comprising: a stop message receiving section for receiving a routing stop message indicating a routing stop time, as a time remaining until a stop of a routing function, from another router which is executing the router function (*"management unit"; col. 9, lines 32 – 65*); a master transition deciding section for deciding whether or not the router is capable of executing the routing function when the message receiving section receives the routing stop message (*col. 9, lines 5 – 17, 50 – 65*); a routing capability message generating section for generating a routing capability message notifying the time until the routing function is enabled; and a capability message transmitting section for transmitting the routing capability message to nodes in a local area network to which the router is connected (*"information of definition"; col. 10, lines 12 – 49*).

Ichinohe et al. do not disclose explicitly a transition time calculating section for calculating a time required to start the routing function when the master transition deciding section decides that the routing function is capable of being executed.

Yamaya et al. (US 20020184387 A1) in the same field of endeavor teach a transition time calculating section for calculating a time required to start the routing function when the master transition deciding section decides that the routing function is capable of being executed (*Fig. 17, Fig. 18, paras. [0140] - [0144]*).

At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Ichinohe et al. to include the features of a transition time calculating section for calculating a time required to start the routing function when the master transition deciding section decides that the routing function is

capable of being executed as taught by Yamaya et al. One of ordinary skill in the art would be motivated to do so for providing a method for connecting between networks, a virtual router, and a system for connecting between networks by using this virtual router that make it possible to carry out a data forwarding even if a plurality of lines have been disconnected due to the occurrence of a trouble on a route among the lines connected to a virtual route (*as suggested by Yamaya et al., see para. [0009]*).

**Regarding claim 7**, Ichinohe et al. disclose a router further including a status monitor section for monitoring the status of connection with an external network and deciding whether or not to cancel the connection (*"failure detection unit"; Fig. 3, col. 14, lines 44 – 63*); and a stop message transmitting section for transmitting the routing stop message to a node on a local area network to which the router is connected (*"a function stop indication"; col. 9, lines 42 – 65*).

Ichinohe et al. do not disclose explicitly a routing stop time calculating section for calculating the routing time remaining until routing stop when the status monitor section decides to cancel connection during execution of a routing function; a routing stop message generating section for generating a routing stop message giving the time calculated by the routing stop time calculating section.

Yamaya et al. in the same field of endeavor teach a routing stop time calculating section for calculating the time remaining until routing stop when the status monitor section decides to cancel connection during execution of a routing function; a routing stop message generating section for generating a routing stop message giving the time

calculated by the routing stop time calculating section (*Fig. 17, Fig. 18, paras. [0140] - [0144]*).

At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Ichinohe et al. to include the features of a routing stop time calculating section for calculating the time remaining until routing stop when the status monitor section decides to cancel connection during execution of a routing function; a routing stop message generating section for generating a routing stop message giving the time calculated by the routing stop time calculating section as taught by Yamaya et al. One of ordinary skill in the art would be motivated to do so for providing a method for connecting between networks, a virtual router, and a system for connecting between networks by using this virtual router that make it possible to carry out a data forwarding even if a plurality of lines have been disconnected due to the occurrence of a trouble on a route among the lines connected to a virtual route (as suggested by Yamaya et al., see para. [0009]).

**Regarding claim 8,** Ichinohe et al. disclose a router further including a buffer for storing a message to be sent to the external network, received from the local area network to which the router is connected after the stop of routing function, and a capability message receiving section for receiving a routing capability message from another router, whereby, when the routing capability message is received, the message stored in the buffer is transmitted to the router which was the source of the message ("*MIB memory unit*"; *Fig. 18A, Fig. 18B, col. 30, lines 58 – 67, col. 31, lines 1 – 15*).

**Regarding claim 10**, Ichinohe et al. do not disclose, wherein, if the routing stop time in the routing stop message received is equal to or smaller than a predetermined time, it is decided that the router which was the source of the routing stop message is under transition into a stop of routing function.

Yamaya et al. in the same field of endeavor teach wherein, if the routing stop time in the routing stop message received is equal to or smaller than a predetermined time, it is decided that the router which was the source of the routing stop message is under transition into a stop of routing function (*Fig. 17, Fig. 18, paras. [0140] - [0144]*).

At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Ichinohe et al. to include the features of wherein, if the routing stop time in the routing stop message received is equal to or smaller than a predetermined time, it is decided that the router which was the source of the routing stop message is under transition into a stop of routing function as taught by Yamaya et al. One of ordinary skill in the art would be motivated to do so for providing a method for connecting between networks, a virtual router, and a system for connecting between networks by using this virtual router that make it possible to carry out a data forwarding even if a plurality of lines have been disconnected due to the occurrence of a trouble on a route among the lines connected to a virtual route (*as suggested by Yamaya et al., see para. [0009]*).

**Regarding claim 12**, Ichinohe et al. disclose a terminal (*Fig. 1A, Fig. 1B*) comprising: a terminal receiving section for receiving a routing stop message giving a routing stop time, as a time remaining until a stop of a routing function from a first router

currently executing the routing function, and a routing capability message indicating a routing capability time, as a time until the routing function by a second router is enabled (*"management unit"*; *col. 9, lines 32 – 65*); and a router switch section for switching a communication to be sent to an external network from the first router over to the second router by a timing depending upon the routing stop message and routing capability message received by the terminal receiving section (*"routing module"*; *Fig. 1A, Fig. 1B, Fig. 3, col. 9, lines 42 – 65, col. 10, lines 12 – 33, col. 14, lines 45 – 63*).

**Regarding claim 13**, Ichinohe et al. disclose wherein the switching by the router switch section occurs after the lapse of the routing stop time and a lapse of the routing capability time (*col. 10, lines 25 – 49*).

8. Claims 9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichinohe et al. (6148411) in view of Yamaya et al. (US 20020184387 A1) as applied to claim 6, 7 above, and further in view of Flinck et al. (US 7099326 B2).

**Regarding claim 9**, the combined system of Ichinohe et al. and Yamaya et al. discloses wherein the routing stop message is a router advertisement message of ICMP (*see Yamaya et al., paras [0140], [0141]*).

The combined system of Ichinohe et al. and Yamaya et al. does not disclose advertisement message of ICMPv6 and has the routing stop time set in the lifetime field thereof, and the routing stop message is sent to the nodes in the Local Area Network.

Flinck et al. in the same field of endeavor disclose a router advertisement message of ICMPv6 and has the routing stop time set in the lifetime field thereof, and the routing stop message is sent to the nodes in the Local Area Network ("*ICMPv6*"; *Fig. 5, Fig. 6, Fig. 8, col. 4, lines 59 – 66, col. 5, lines 34 – 57*).

At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Ichinohe et al. and Yamaya et al. to include the features of wherein the routing stop message is a router advertisement message of ICMPv6 and has the routing stop time set in the lifetime field thereof, and the routing stop message is sent to the nodes in the Local Area Network as taught by Flinck et al. One of ordinary skill in the art would be motivated to do so for providing a plurality of routers constituting a virtual router perform routing function concurrently based on dynamically set a packet condition for defining the routing object by each router (as suggested by Flinck et al., see para [0014]).

**Regarding claim 11**, the combined system of Ichinohe et al. and Yamaya et al. discloses wherein the routing stop message is a router advertisement message of ICMP (see Yamaya et al., paras [0140], [0141]).

The combined system of Ichinohe et al. and Yamaya et al. does not disclose a router advertisement message of ICMPv6 and the time required until routing function is enabled is set in the reachable time field thereof, and the routing capacity message is sent to the nodes in the Local Area Network.

Flinck et al. in the same field of endeavor disclose a router advertisement message of ICMPv6 and the time required until routing function is enabled is set in the

reachable time field thereof, and the routing capacity message is sent to the nodes in the Local Area Network ("*ICMPv6*"; *Fig. 5, Fig. 6, Fig. 8, col. 4, lines 59 – 66, col. 5, lines 34 – 57*).

At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Ichinohe et al. and Yamaya et al. to include the features of a router advertisement message of ICMPv6 and the time required until routing function is enabled is set in the reachable time field thereof, and the routing capacity message is sent to the nodes in the Local Area Network as taught by Flinck et al. One of ordinary skill in the art would be motivated to do so for providing a plurality of routers constituting a virtual router perform routing function concurrently based on dynamically set a packet condition for defining the routing object by each router (*as suggested by Flinck et al., see para [0014]*).

### ***Response to Arguments***

9. Applicant's arguments filed on 01/15/2009 with respect to claims 1 – 13 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a) Ioele et al. (US 20020073337 A1).
- b) Schroeder et al. (5088091).
- c) Garg et al. (US 6865591 B1).



11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571)272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew C Lee/  
Examiner, Art Unit 2419  
<4/17/2009::3Qy09>

/Salman Ahmed/  
Examiner, Art Unit 2419